FOS CDR RID Report

Date Last Modified 11/30/95
Originator Spaulding Omar / Hwang Paul
Phone No 202-358-0777
Organization NASA HQ , Code YD
E Mail Address ospaulding@mtpe.hq.nasa.gov
Document CDR

RID ID CDR 47
Review FOS
Originator Ref HQ-OYS-07
Priority 2

Section N/A **Page** N/A **Figure Table** N/A

Category Name Hardware **Actionee** ECS
Sub Category
Subject Fault Tolerance

Description of Problem or Suggestion:

The single failure tolerance design has not been acceptable for multi mission operations by other agencies which include FAA and DOD. One major example with the current design is a system failure caused by a second fault in the operational LAN. This failure causes the system to segment (two independent LANs) do to FDDI reconfiguration. This is unacceptable from an operational view point. If a third LAN could be swapped in then the system could fail but be operational. At first glance the approach would seem costly but with a down control center and spacecraft with limited storage capacity this capability is a necessity for multi mission operations in the future.

Originator's Recommendation

It is recommended that the prime contractor develop, analyze, and document how the support FDDI LAN could be configured and integrated into the operational FDDI LAN when a second fault occurs. By using a automated or manual reconfiguration of the Support LAN the system achieves a true two fault tolerance with a fail safe operational condition used by many control centers.

GSFC Response by: **GSFC Response Date**

HAIS Response by: Andy Miller **HAIS Schedule**
HAIS R. E. Scott Carter **HAIS Response Date** 11/3/95

As part of it continuing system engineering effort looking at multi-mission support, FOS will continue its evaluation of the EOC LAN reliability. This effort will focus on ensuring that multi-mission support is not compromised from an operational perspective due to the EOC LAN configuration. The support LAN has been designed as one option that can be currently used as a backup if the operational LAN experiences multiple failures. Additional analyses will be performed to ensure that the optimal configuration is in place at the time of EOC multi-mission support.

The current FOS baseline is based on the FOS Level 3 requirement to ensure no single point of failure.

Reference requirement EOSD3710:

The ECS shall have no single point of failure for functions associated with real-time operations of the spacecraft and instruments.

Status **Closed** **Date Closed** **11/30/95** **Sponsor** **Johns**

****** **Attachment if any** ******